Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Call Authentication Trust Anchor	WC Docket No. 17-97

PETITION OF VERIZON FOR DECLARATORY RULING OR, IN THE ALTERNATIVE, A LIMITED EXTENSION OF THE STIR/SHAKEN IMPLEMENTATION DEADLINE

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INTRODUCTION AND SUMMARY

Verizon has long been a champion of robocall mitigation. We strongly supported the industry-wide implementation of the STIR/SHAKEN framework, and we urged both Congress and the Commission to require all service providers to implement it. We are on track to implement it on all of our VoIP-service platforms by June 2021. We have already implemented a variety of robocall mitigation efforts on our VoIP-service platforms, and we have extended or adapted those mitigation efforts to our POTS ("plain old telephone system") customers when feasible. Verizon does more to protect its POTS customers than any other service provider, including providing them our innovative and unique Spam Alerts service, blocking millions of illegal robocalls in our network before they even reach our customers, and operating industry-leading "honeypot" and "traceback" programs to identify, track down, and shut down illegal robocallers.[2]

[1] The Verizon companies participating in this proceeding are the regulated, wholly owned subsidiaries of Verizon Communications Inc.

[2] *See* Verizon's Comments on Public Notice, CG Docket No. 17-59 (Jan. 29, 2020), https://ecfsapi.fcc.gov/file/1012988727097/2020%2001%2029%20Verizon%20Comments%20on%20Public%20Notice.pdf (discussing Verizon's "Call Filter blocking tool," "SPAM?" alerts, and "network-based blocking"); Comments of Verizon at 2, EB Docket No. 20-22 (July 10,

This Petition concerns a specific and limited POTS offering that Verizon provides to a small subset of voice customers on Verizon's fiber-to-the-premises ("FTTP") platform. Verizon refers to this POTS service internally as "FTTP-SIP" because it utilizes Session Initiation Protocol ("SIP") as part of the network signaling, but the FTTP-SIP service is not offered or sold as a VoIP service and does not have the advanced features associated with Verizon's VoIP service offerings. The FTTP-SIP platform, which accounts for less than 1% of our overall mass-market customer base, dates to the early 2000s, when some customers voluntarily chose to continue receiving POTS service over fiber. At that time, for those customers who wished to keep their regulated POTS service,[3] Verizon configured a service that provided customers the POTS experience described in its tariffs, but in some instances converted the call into a SIP format in Verizon's access network. Although all of these customers have a VoIP alternative (Verizon's "Fios Digital Voice," or "FDV," service) connected to their premises and available to them, Verizon also currently continues to support a regulated POTS service offering (which Verizon provisions in part over its FTTP-SIP platform) for those customers that prefer to continue with POTS.

Verizon respectfully requests that the Commission confirm that neither the Pallone-Thune Telephone Robocall Abuse Criminal Enforcement and Deterrence Act, Pub. L. No. 116-105, 133 Stat. 3274 (2019) ("TRACED Act"), nor any Commission rule, requires Verizon to

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2020), https://ecfsapi.fcc.gov/file/1071076106405/07102020%20Verizon%20Comments.pdf (discussing Verizon's "extensive 'honeypot' program, which identifies illegal calls with a high degree of precision and certainty"); *see also* Letter from Christopher Oatway, Verizon, to G. Patrick Webre, FCC, GC Docket No. 17-59 (Feb. 28, 2020), https://ecfsapi.fcc.gov/file/10228034766291/02%2028%202020%20Verizon%20FCC%20Blocking%20Letter-FINAL.pdf (similar).

[3] Because customers continued to have the option of retaining their POTS service, no 47 U.S.C. § 214 application was necessary.

deploy STIR/SHAKEN for these Verizon customers receiving POTS service via the FTTP-SIP platform. They have chosen a service — POTS service — that does not exhibit the network qualities that would make it an "internet protocol network" in the sense that the term is used in the TRACED Act. Requiring implementation of STIR/SHAKEN on this particular, corner-case technology — which is end-of-life — would be an onerous task with any benefits vastly outweighed by the burdens. Neither Congress's mandate that providers "implement the STIR/SHAKEN authentication framework in [their] internet protocol networks," TRACED Act § 4(b)(1)(A), nor any Commission rule interpreting that mandate, is properly understood to require its implementation on this limited platform. The Commission should issue a declaratory ruling resolving any ambiguity in that respect and find that Verizon need not deploy STIR/SHAKEN for its limited base of POTS customers that receive their service via Verizon's FTTP-SIP platform.

Alternatively, Verizon respectfully requests that the Commission grant it a three-year extension of the June 30, 2021, deadline for implementing STIR/SHAKEN on its FTTP-SIP platform. Attempting to deploy STIR/SHAKEN on switches currently serving FTTP-SIP customers by June 2021 would require substantial resource reprioritization, risk harming consumers by creating network outages, cost millions of dollars, and would likely not be achievable in any event. All of the switches currently serving FTTP-SIP customers are considered end-of-life, and Verizon is already underway upgrading them with new ones, which will be capable of supporting STIR/SHAKEN. This platform upgrade and customer migration program has already begun but is expected to take approximately five years to complete. Although a three-year extension would still require a substantial acceleration of Verizon's planned network transformation for these customers, and a diversion of resources away from

other projects, it would at least permit us to avoid stranding investment on end-of-life equipment. In the meantime, *all* of these customers will not only have ready access to the benefits of STIR/SHAKEN if they were to switch to Verizon's broader VoIP network, but will also benefit from robocall mitigation protections Verizon has deployed to care for POTS customers. To avoid the undue hardship Verizon will suffer under the current deadline, the Commission should grant Verizon an extension under § 4(b)(5)(A)(ii) of the TRACED Act and the Commission's Second Report and Order, *Call Authentication Trust Anchor*, WC Docket No. 17-97, FCC 20-136, 2020 WL 5905315 (rel. Oct. 1, 2020) ("Second Report and Order").

BACKGROUND

A. In the early 2000s, Verizon began deploying its fiber-to-the-premises ("FTTP") access network to customers in our ILEC footprint in order to provide video and higher-speed broadband services in addition to voice service. As Verizon connected customers to its FTTP access network, we provided them the ability to continue to purchase their existing regulated POTS voice service over the new fiber facilities. We did so by configuring their fiber service to provide the same customer experience described in our tariffs, i.e., the features that they had been receiving on copper with Time Division Multiplexing ("TDM") technology. *See* Verizon, *Verizon Tariffs, Product Guides, Agreements and Related Materials*, https://www.verizon.com/tariffs/.

Verizon accomplished this configuration in two ways, both of which it rolled out in the mid-2000s. Verizon initially provided "POTS-Over-Fiber" using the same TDM signaling protocol used for traditional copper service (referred to internally as "FTTP-TDM"). Subsequently, for some customers (the FTTP-SIP customers, who today represent less than 1% of Verizon's total mass-market customer base), Verizon provisioned the same POTS service

using an alternative configuration that employs elements of SIP within Verizon's network. POTS-Over-Fiber customers in this second group initiate their voice calls using analog (i.e., TDM) telephones. Their calls are then converted into SIP format at Verizon's optical network terminal ("ONT") at the customer's premises, and Verizon's network is configured to replicate the characteristics of a POTS call.

Later in the decade, after it became apparent that VoIP technology could offer customers an enhanced calling experience, Verizon began to develop, deploy, and market a VoIP service called Fios Digital Voice. Fios Digital Voice includes numerous advanced features that are not available to POTS customers, such as three-way calling, a smartphone application to configure and change user-managed features such as call forwarding, the ability to block more unwanted numbers, the simultaneous ring feature, and the ability to pick one's own area code. *See* Verizon, *Analog vs. Digital Voice Service*, https://www.verizon.com/info/analog-vs-digital-phone. While optional, Fios Digital Voice is available to every FTTP-SIP customer who wishes to benefit from the advanced features that VoIP makes available.

Fios Digital Voice has evolved to include sophisticated, modern Application Programming Interfaces in order to enable connectivity to the network elements needed for Verizon to provide advanced VoIP functionality to its customers. FTTP-SIP, by contrast, does not include these same advanced connectivity features and instead deploys the same legacy interfaces established many decades ago for the copper POTS network.

B. FTTP-SIP and Fios Digital Voice are positioned fundamentally differently with respect to STIR/SHAKEN implementation — both in terms of consumer expectations, consumer benefits, and challenges associated with implementing the technology.

Verizon is on track to implement STIR/SHAKEN on its Fios Digital Voice platform (along with all of its other wireline and wireless VoIP platforms) prior to June 2021. Fios Digital Voice customers will be able to take advantage of synergies between STIR/SHAKEN and the advanced features that they will have available to them. For example, Verizon is in the process of deploying for Fios Digital Voice customers a robocall blocking tool that, similar to the Call Filter blocking service available to Verizon Wireless customers, will identify likely illegal or unwanted robocalls and send them directly to voicemail. Customers' experience with that robocall blocking tool will be enhanced by STIR/SHAKEN because STIR/SHAKEN will improve the algorithms used to determine which calls should be blocked and which ones should be let through. Fios Digital Voice customers also can sign up with Nomorobo, a third party that provides a free blocking service using the simultaneous ring feature to which Fios Digital Voice customers have access. *See* Verizon, *Stop Unwanted Calls*, https://www.verizon.com/support/residential/homephone/calling-features/stop-unwanted-calls.

For FTTP-SIP, the situation is different. First, the consumer benefits of STIR/SHAKEN for these POTS customers will be lower than for Fios Digital Voice customers. As POTS customers, they will not receive advanced features like robocall blocking and thus will not realize the same synergies between those features and STIR/SHAKEN that VoIP customers will receive. They will, nevertheless, still benefit from other Verizon products and activities to protect them from unwanted robocalls. For example, Verizon provides its free "Spam Alerts" service to all wireline consumers (including ones served on copper as well as POTS-Over-Fiber customers like FTTP-SIP) to warn them about likely illegal robocalls by appending "SPAM!" into their caller ID for suspicious calls. Verizon's "network blocking" program also protects all of its POTS customers from robocalls by blocking tens of millions of illegal robocalls in the

network before they can even ring on the customers' phones. And Verizon's efforts to trace back and shut down the callers who are responsible for illegal robocalls are unparalleled: Verizon is a founding member of the Industry Traceback Group ("ITG"), is the only service provider to operate an extensive "honeypot" of virtual voicemails to identify illegal robocalls, and is the only service provider to work with the ITG to automate its efforts to trace back robocalls. Verizon has and will continue to invest substantial resources in those and other efforts to help provide its FTTP-SIP and other POTS customers with meaningful robocall mitigation benefits despite the limitations inherent in the nature of their service.

Second, the costs and challenges with implementing STIR/SHAKEN for FTTP-SIP make it infeasible — even if Verizon were to expend substantial resources — to meet the June 2021 deadline. The switches initially deployed in the early 2000s for FTTP-SIP are now end-of-life. Verizon's network engineering team is in the process of replacing those initial switches with a newer switch platform. That switch-replacement program is in its early stages: Verizon has replaced 2 of the 28 older switches, and the balance are anticipated to be replaced over the course of approximately the next five years. There are only two potential ways to deploy STIR/SHAKEN to FTTP-SIP customers, neither of which is accomplishable by June 2021: the first way would be to retrofit STIR/SHAKEN onto the remaining 26 end-of-life switches; the second way is to replace all the old switches with new ones and then implement STIR/SHAKEN on the new switches.

Verizon explored the option of retrofitting the existing switches with STIR/SHAKEN and concluded that that approach would likely neither meet the June 2021 deadline nor be a safe and effective way to care for our customers. It would be operationally risky to attempt to retrofit the existing end-of-life switches by that date so that they would support STIR/SHAKEN, which

would put service to our customers at risk. The existing end-of-life switches would require costly hardware upgrades in order to be capable of supporting new software necessary to implement STIR/SHAKEN. Such legacy systems generally take longer to modify than newer, more modern ones, and the risk of bugs that create operational problems and delays are substantially higher with old software. To implement STIR/SHAKEN on the existing end-of-life switches, Verizon would have to devote tens of thousands of hours of internal resources spread across multiple functional areas. For example, Verizon's network planning team would need to undertake the necessary design work; sourcing would need to engage and negotiate with vendors on necessary software and hardware; IT would need to perform the necessary back-office work; maintenance engineering would need to undertake lab testing both for the switch upgrades and for the STIR/SHAKEN code; the engineering and operations group would need to perform production upgrades; field engineering would need to perform the hardware refresh; and a project manager would need to oversee it all. And even then, we still could not fully eliminate the risk of actually creating operational problems for our customers when retrofitting this aged equipment. Finally, much of this investment would be scrapped within a very short period, because these end-of-life switches are slated to be replaced over the next several years.[4]

It would also be technically infeasible to meet the June 2021 deadline by pursuing the second option of first replacing the remaining 26 end-of-life switches with new technology and then implementing STIR/SHAKEN on each new switch. Those are two distinct, time-consuming steps that must proceed serially. Just replacing the dozens of current switches with new switches is planned as a multi-year project. Even if Verizon were able to accelerate it substantially, it could not fully complete this transition prior to June 2021. Among the steps involved in that

[4] The vendor estimates that the price of the code delivery itself is $6 million.

initial part of the project are plan conversion (the planning process for migrating switches including inventorying the data on the ones to be decommissioned); ordering, installing, and activating new equipment and installing geodiverse controllers and replacement gateways; working through various trunking and unique architectural issues such as E911 and CENTREX connectivity; performing back-office IT work; and managing the switch conversion process. Those activities could not be fully completed until well into 2022 at the earliest. Then, subsequent to each switch being replaced, Verizon would need to undertake the same STIR/SHAKEN implementation project management activities that it has been doing for its Fios Digital Voice platforms, which would take several additional months assuming no unexpected delays.[5]

Finally, the ongoing COVID-19 pandemic, including the recent surge in cases nationwide, has led to and continues to present material risks of project delays. We have experienced delays, such as in lab testing, when a COVID case is discovered in a facility and protocols are introduced to clean the facility; vendors and employees have experienced travel-related delays as a result of having to comply with various state and local rules; and in some cases, employees with critical roles have been required to quarantine. These sorts of challenges create additional risks of unforeseen delays.

[5] Despite the infeasibility of meeting the June 2021 deadline for STIR/SHAKEN implementation on the FTTP-SIP platform, Verizon engaged the vendor of the new switches starting in January 2020 in order to ensure the delivery of code capable of meeting Verizon's STIR/SHAKEN needs for those new switches. The vendor was actually ahead of many others delivering the initial code, but we found that it did not fully meet our requirements, so we continued working with the vendor on refining the deliverable, which is now scheduled for mid-2021.

ARGUMENT

I. THE COMMISSION SHOULD ISSUE A DECLARATORY RULING THAT FTTP-SIP FALLS OUTSIDE THE SCOPE OF THE TRACED ACT'S STIR/SHAKEN IMPLEMENTATION MANDATE

Under its authority to "issue a declaratory ruling terminating a controversy or removing uncertainty," 47 C.F.R. § 1.2(a), the Commission should conclude that Verizon need not implement STIR/SHAKEN with respect to the POTS service provisioned on the FTTP-SIP platform.

Although the TRACED Act generally requires voice providers to implement certain call authentication technologies, Congress was well aware that not all technologies could take full advantage of STIR/SHAKEN.[6] Reflecting that understanding, section 4 of the TRACED Act draws a distinction between a carrier's "internet protocol networks" and its "non-internet protocol networks": Congress directed the Commission to require voice providers "to implement the STIR/SHAKEN authentication framework in the internet protocol networks of the provider of voice service" and "to take reasonable measures to implement an effective call authentication framework in the non-internet protocol networks of the provider of voice service." TRACED Act § 4(b)(1)(A)-(B).

Congress did not specify a threshold governing when a provider has "implement[ed] the STIR/SHAKEN authentication framework in [its] internet protocol networks," and the language's ordinary meaning confirms that Verizon can comply with it without implementing STIR/SHAKEN as to FTTP-SIP. *See Mohamad v. Palestinian Auth.*, 566 U.S. 449, 454 (2012)

[6] *See* S. Rep. No. 116-41, at 14 (2019) ("In its initial form, STIR/SHAKEN may not function properly with certain calling technologies and in certain scenarios, such as outbound-only calling technologies where the service provider does not assign individual telephone numbers to outbound callers.").

("Because the [Act] does not define the [decisive term], we look first to the word's ordinary meaning."). The ordinary meaning of *implement* is simply to put into effect.[7] And, as noted, Verizon will put STIR/SHAKEN into effect across its VoIP networks by June 2021. Verizon cannot implement STIR/SHAKEN with respect to the FTTP-SIP *service* by that date, but Verizon's upgraded VoIP *network* will cover all of the customers currently receiving FTTP-SIP. All of those customers can choose to migrate — without any change in the facilities connecting their premises — to Verizon's upgraded VoIP service and thus receive its more advanced robocall mitigation capabilities. Given the unusual history of, and technology underlying, the FTTP-SIP POTS offering, the Commission should conclude that Verizon need not implement STIR/SHAKEN with respect to its FTTP-SIP platform in order to comply with Congress's broader mandate that Verizon put STIR/SHAKEN into effect on its internet protocol networks.

The Commission's rules elaborating on this requirement do not appear to have anticipated the existence of such a service. Under the Commission's rules, "[t]o fulfill [the] obligation" to "fully implement the STIR/SHAKEN authentication framework in its internet [p]rotocol networks," carriers must take certain actions with respect to "all SIP calls." 47 C.F.R. § 64.6301(a). The rules further define "SIP call" to refer to calls that make use of SIP format throughout the call path — "calls initiated, maintained, and terminated using the Session Initiation Protocol signaling protocol." *Id.* § 64.6300(d).

The Commission certainly does not appear to have anticipated the hybrid nature of the FTTP-SIP POTS-like service and its provision — ambiguity that should be resolved against

[7] *E.g.*, *Implement*, Lexico, https://www.lexico.com/en/definition/implement; *see also Implement*, Merriam-Webster, https://www.merriam-webster.com/dictionary/implement ("CARRY OUT, ACCOMPLISH"; "*especially*: to give practical effect to and ensure of actual fulfillment by concrete measures").

requiring implementation of STIR/SHAKEN on this particular platform. FTTP-SIP customers have chosen a POTS service instead of Verizon's VoIP service; even though that VoIP service is already available through a network connected to their premises, these customers have elected to choose a service that is far more limited. For example, the principal benefit of STIR/SHAKEN for consumers is that it can be leveraged to increase the effectiveness of robocall blocking services, which is one of the advanced features under development for Fios Digital Voice customers but is not a feature of traditional POTS services, including POTS-Over-Fiber services like FTTP-SIP.[8] Because these consumers would not be able to (nor expect to) take full advantage of the features that STIR/SHAKEN enables in a way that even approximates the VoIP experience toward which Congress directed the TRACED Act's STIR/SHAKEN mandate, the statute is not sensibly understood to require Verizon to upgrade its network to provide STIR/SHAKEN for customers receiving POTS over the FTTP-SIP platform. *Cf. Nixon v. Missouri Mun. League*, 541 U.S. 125, 138 (2004) (statutes are to be construed to avoid futility and absurdity). Verizon does expect, however, that it will timely implement STIR/SHAKEN on all of its VoIP-service platforms, consistent with the TRACED Act's and this Commission's requirements.[9]

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[8] *See, e.g.*, Verizon's Comments on Public Notice at 4, CG Docket No. 17-59 (Jan. 29, 2020), https://ecfsapi.fcc.gov/file/1012988727097/2020%2001%2029%20Verizon%20Comments%20on%20Public%20Notice.pdf (explaining how Verizon's Call Filter robocall blocking service is already using STIR/SHAKEN to improve the algorithm used to determine which calls to block or not).

[9] Policy considerations also support finding that FTTP-SIP is not subject to the STIR/SHAKEN mandate. While the POTS service received over FTTP-SIP is identical to the TDM-over-fiber configuration that some customers receive, Verizon introduced FTTP-SIP to create a more modern POTS platform. Although Verizon is committed to continuing to invest in the FTTP-SIP platform regardless of the Commission's decision with respect to this Petition, any decision here to impose a greater regulatory burden on the more modern (SIP) technology than on more antiquated TDM technology could create a disincentive for other service providers to upgrade aging legacy infrastructure.

II. IN THE ALTERNATIVE, THE COMMISSION SHOULD GRANT VERIZON A THREE-YEAR EXTENSION TO IMPLEMENT STIR/SHAKEN ON ITS FTTP-SIP PLATFORM

In the alternative, the Commission should exercise its authority to grant an extension "for a reasonable period of time" based on a showing of "undue hardship." TRACED Act § 4(b)(5)(A)(ii). Specifically, it should grant Verizon a three-year extension with respect to implementation of STIR/SHAKEN for its FTTP-SIP POTS customers, because Verizon "demonstrate[s]" herein "in detail the specific undue hardships, including financial and resource constraints, that it has experienced and explain[s] why any challenges it faces meet the high standard of undue hardship to STIR/SHAKEN implementation within the timeline required by Congress." Second Report and Order ¶ 65.

First, Verizon cannot implement this service prior to the current deadline without both an extraordinary diversion of resources from other pressing matters and substantial expense; even with the extraordinary expenditure and resource redirection required, there would be a high likelihood of missing the deadline. As noted above, to implement STIR/SHAKEN by retrofitting already-end-of-life switches would be prohibitively expensive both in terms of dollars and resource diversion and create risks of problematic outages for our customers. Furthermore, all of that investment would be in an underlying hardware and software platform that is already at the end of its useful life, and that platform is already being replaced. And the process of deploying the *new* switches and migrating over to them, and then upgrading them with STIR/SHAKEN, is necessarily a multi-year project that cannot safely and effectively be completed by next June. Particularly given the ongoing pandemic, Verizon cannot envision implementing STIR/SHAKEN on FTTP-SIP on that timeline under present circumstances.

Second, this hardship is demonstrably undue in light of the unusual characteristics of this offering and its customer base and of the alternative robocall mitigation efforts available for these customers. The customers who choose POTS services and are provisioned on FTTP-SIP are purchasing a TDM-equivalent service; they thus have no expectation of receiving STIR/SHAKEN or any other advanced features. And even if STIR/SHAKEN is ultimately made available to them, their experience with it will, as shown, still be less robust than VoIP customers' experience because of the lack of synergies on POTS with other advanced features.

Verizon is already underway upgrading the end-of-life facilities through which it presently serves these POTS customers. When these broader network upgrades are completed, they will permit Verizon to implement STIR/SHAKEN far more effectively on a more modern platform. Verizon would, in the ordinary course, expect these upgrades to be completed over the course of five or more years. But, if the Commission denies the declaratory ruling petition and concludes that Verizon is required to implement STIR/SHAKEN on its FTTP-SIP platform within a three-year time frame, Verizon will reprioritize its efforts to meet the deadline. In the meantime, these customers will benefit from the fact that Verizon does more to protect its POTS customers than any other service provider, including providing a free, patented robocall alerting system, blocking tens of millions of calls at the network level so that they never even reach customers' phones, and operating the industry's only robocall mitigation "honeypot." And, of course, the FTTP-SIP customers may choose to switch to Fios Digital Voice and benefit from the full implementation of STIR/SHAKEN on the normal schedule.[10]

[10] Moreover, these POTS customers are exceedingly unlikely to be the *source* of any such calls because the FTTP-SIP service only supports dual-tone multi-frequency dialing, which is not suitable for high-volume calling or mass call origination.

CONCLUSION

The Commission should issue a declaratory ruling confirming that the TRACED Act does not require Verizon to implement STIR/SHAKEN for its POTS customers provisioned on the FTTP-SIP platform. In the alternative, the Commission should grant Verizon a three-year extension, until June 30, 2024, to implement STIR/SHAKEN on its FTTP-SIP platform.

Respectfully submitted,

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